Tables

Announcements

Joining Tables
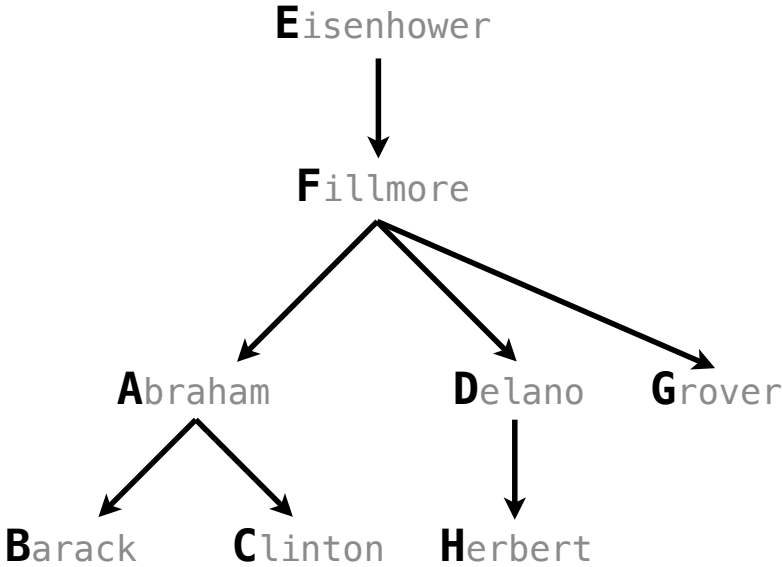
Reminder: John the Patriotic Dog Breeder


```
Eisenhower
    │
    ▼
 Fillmore
  ╱  │  ╲
 ▼   ▼   ▼
Abraham  Delano  Grover
  ╱ ╲      │
 ▼   ▼     ▼
Barack Clinton Herbert
```

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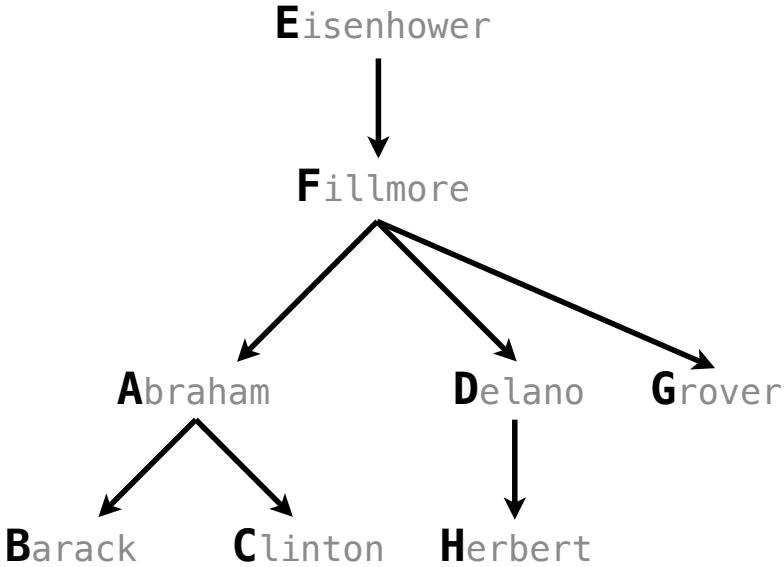


```sql
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SELECT "abraham"          , "clinton"         UNION
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SELECT "fillmore"         , "abraham"         UNION
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CREATE TABLE parents AS

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```

Parents:

Parent	Child
abraham	barack
abraham	clinton
delano	herbert
fillmore	abraham
fillmore	delano
fillmore	grover
eisenhower	fillmore

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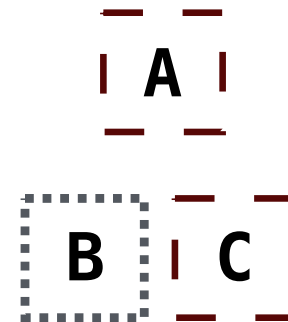
Joining Two Tables

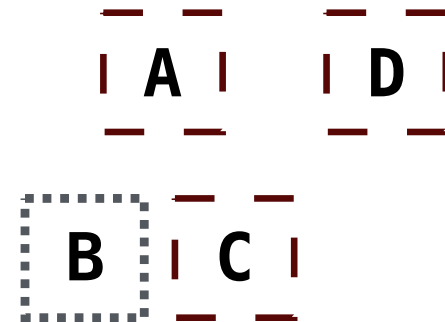Two tables **A** & **B** are joined by a comma to yield all combos of a row from **A** & a row from **B**

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E

A   D

B   C

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E

F

A   D

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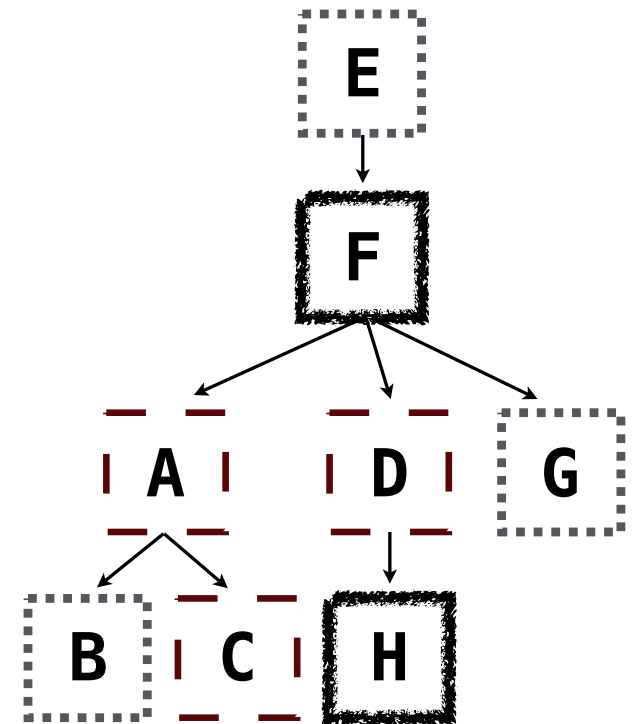
E

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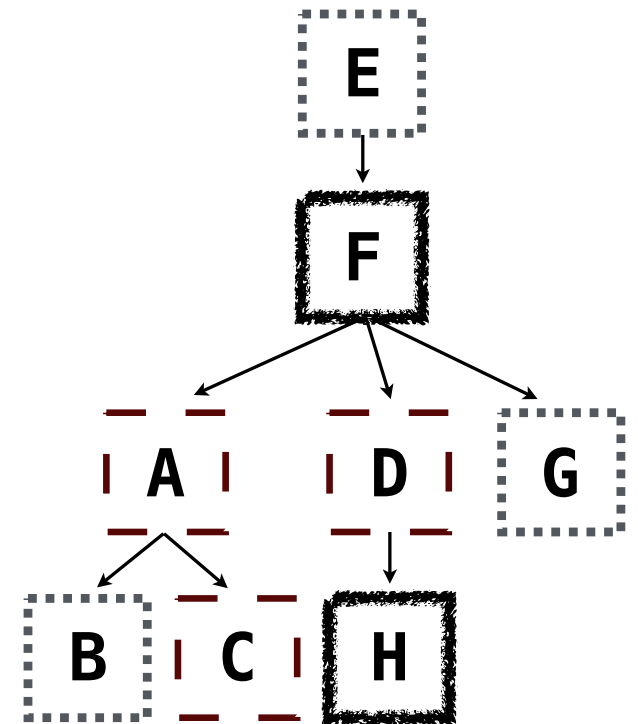## Joining Two Tables

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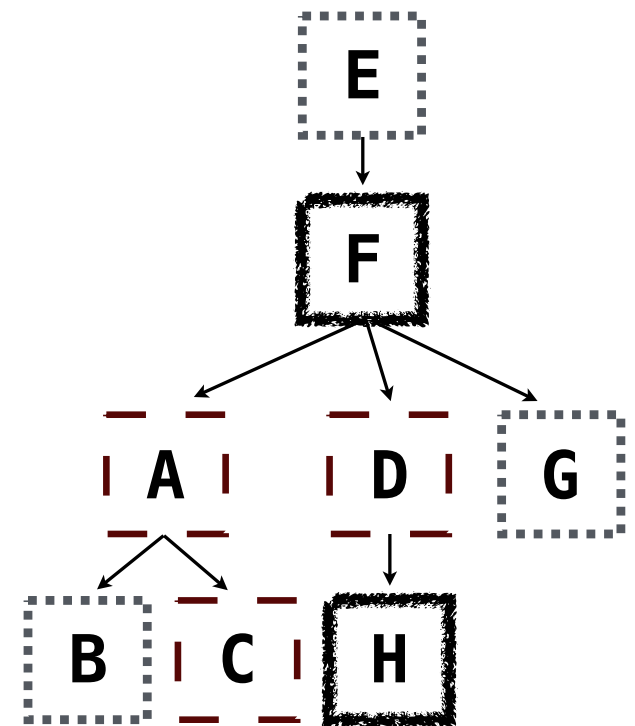
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Select the parents of curly-furred dogs
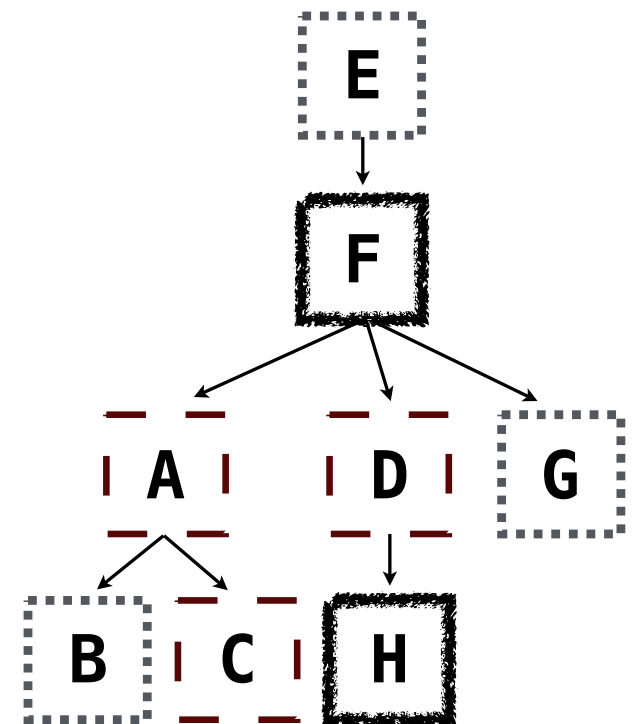
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```

Select the parents of curly-furred dogs

```
SELECT parent FROM parents, dogs
              WHERE child = name AND fur = "curly";
```
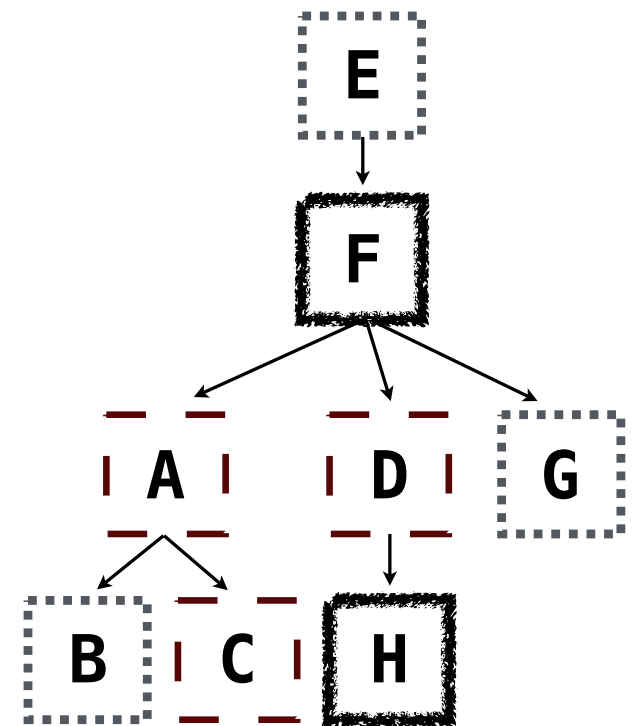
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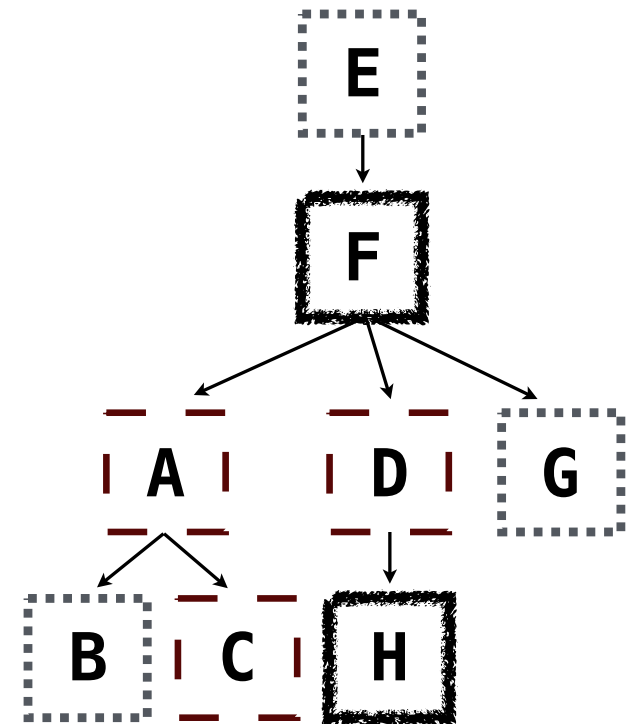
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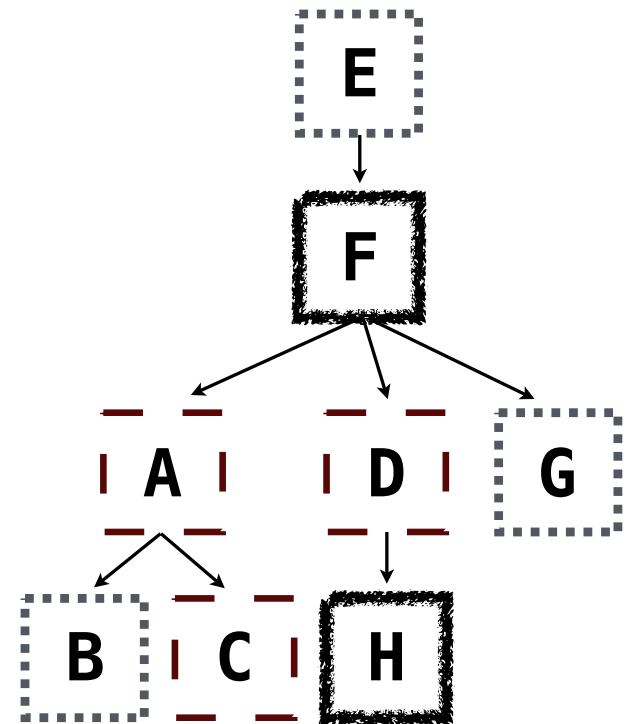
(Demo)

Aliases and Dot Expressions
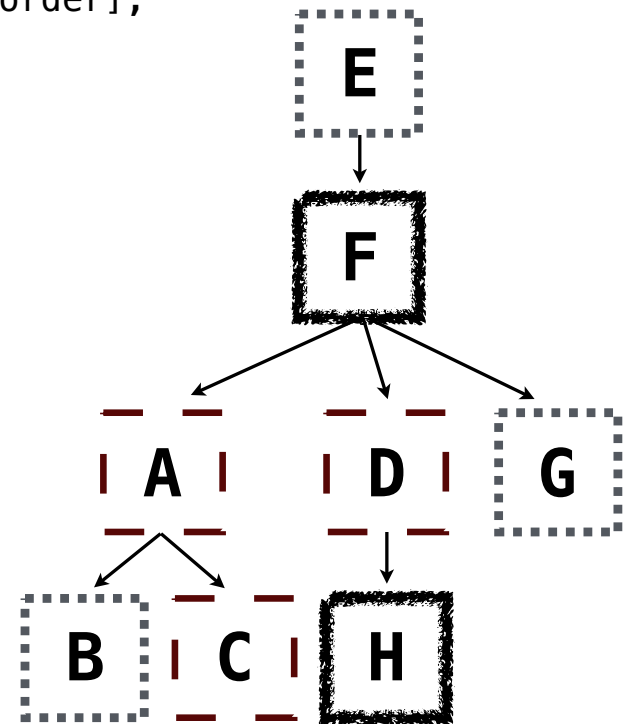
Joining a Table with Itself

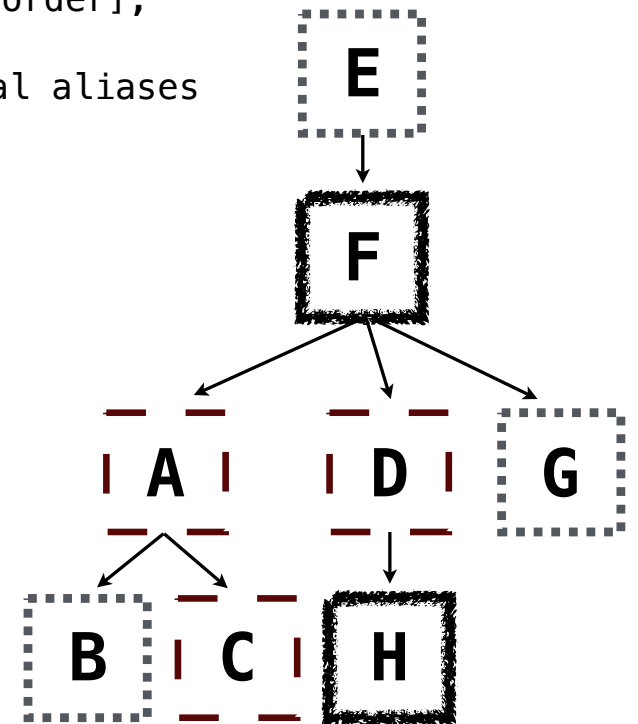Two tables may share a column name; dot expressions and aliases disambiguate column values

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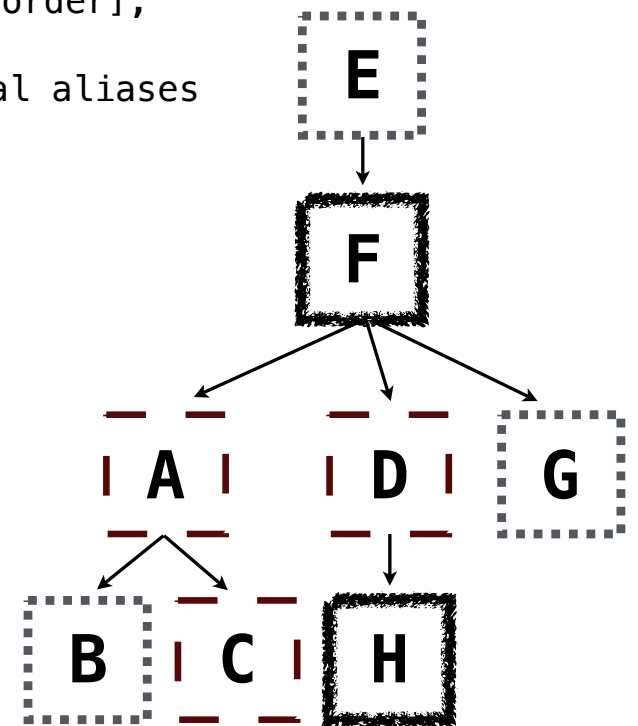[table] is a comma-separated list of table names with optional aliases

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Select all pairs of siblings
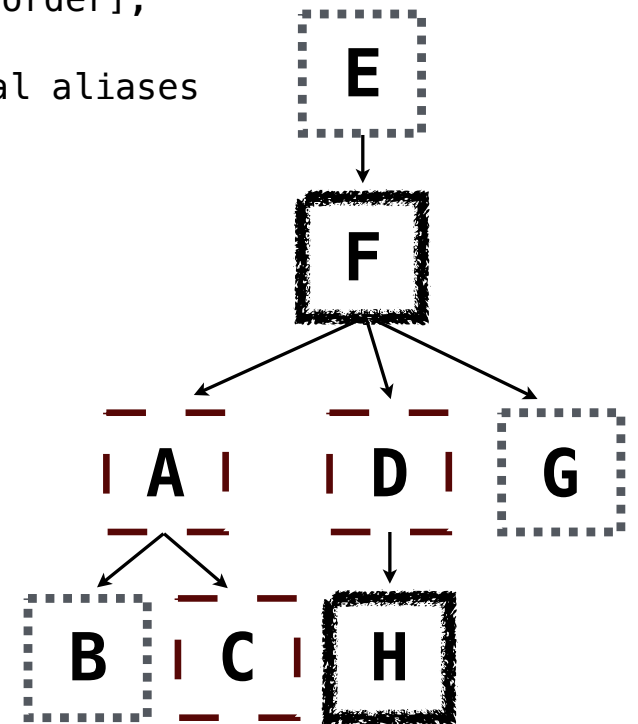
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```
SELECT a.child AS first, b.child AS second
    FROM parents AS a, parents AS b
    WHERE a.parent = b.parent AND a.child < b.child;
```
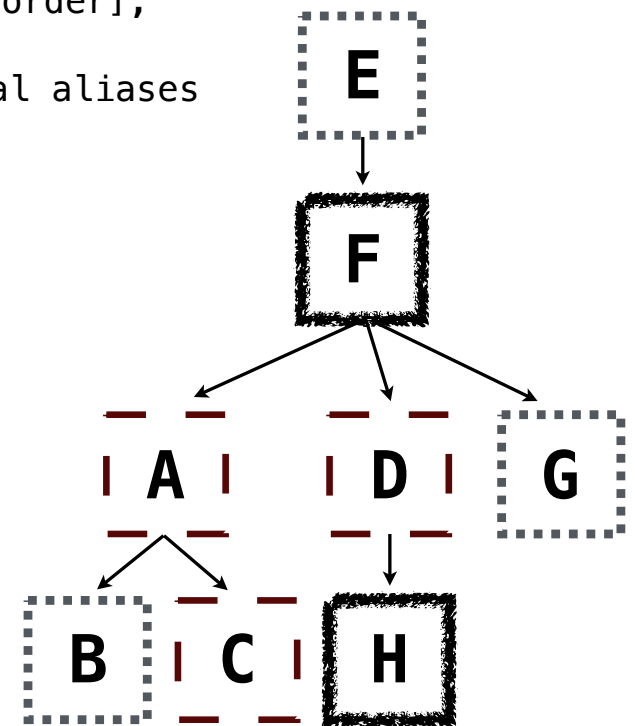
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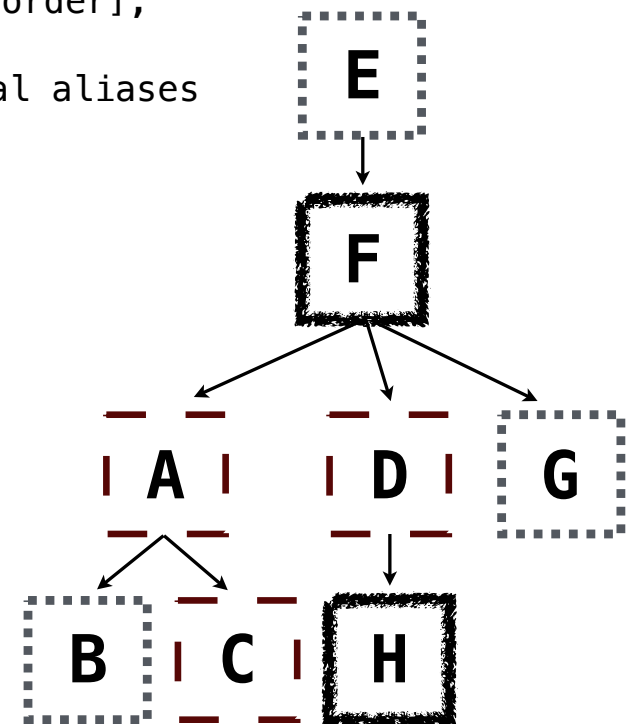
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```

| First	Second
barack	clinton
abraham	delano
abraham	grover
delano	grover

E

F

A   D   G

B   C   H

Example: Grandparents

Which select statement evaluates to all grandparent, grandchild pairs?

1 `SELECT a.grandparent, b.child FROM parents AS a, parents AS b`
`WHERE b.parent = a.child;`

2 `SELECT a.parent, b.child FROM parents AS a, parents AS b`
`WHERE a.parent = b.child;`

3 `SELECT a.parent, b.child FROM parents AS a, parents AS b`
`WHERE b.parent = a.child;`

4 `SELECT a.grandparent, b.child FROM parents AS a, parents AS b`
`WHERE a.parent = b.child;`

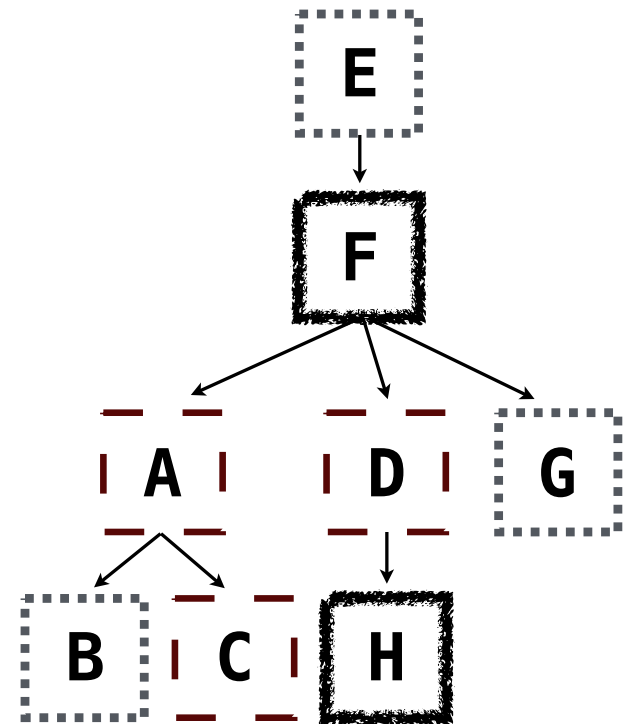**5** None of the above
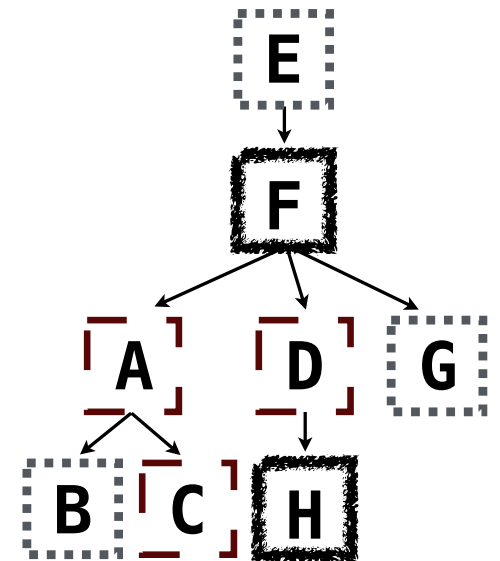
Joining Multiple Tables
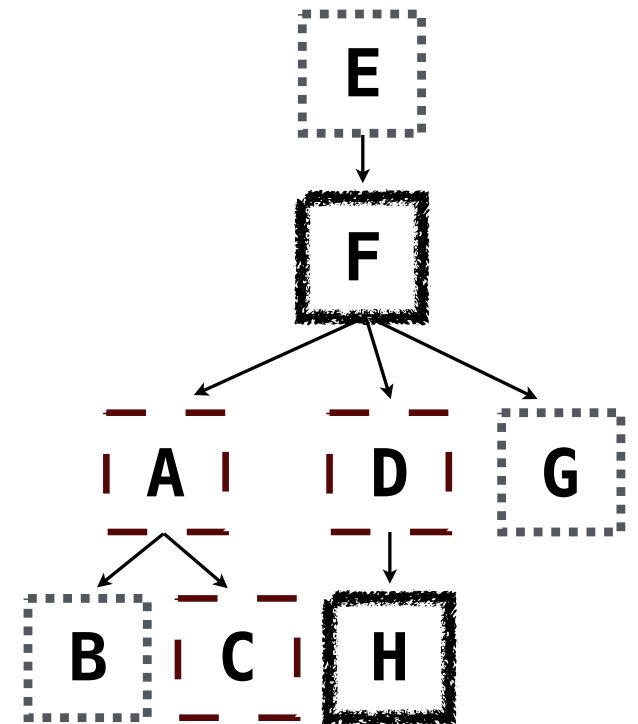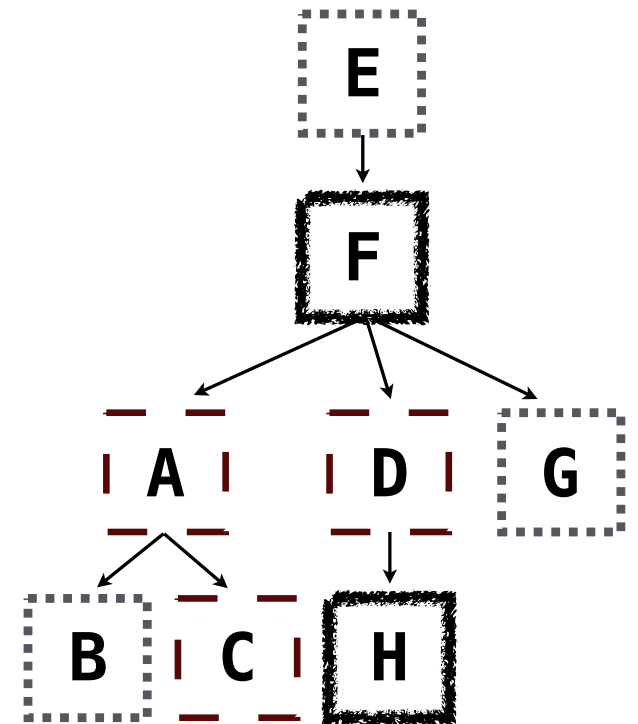
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```
CREATE TABLE grandparents AS
  SELECT a.parent AS grandog, b.child AS granpup
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```

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CREATE TABLE grandparents AS
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Select all grandparents with the same fur as their grandchildren

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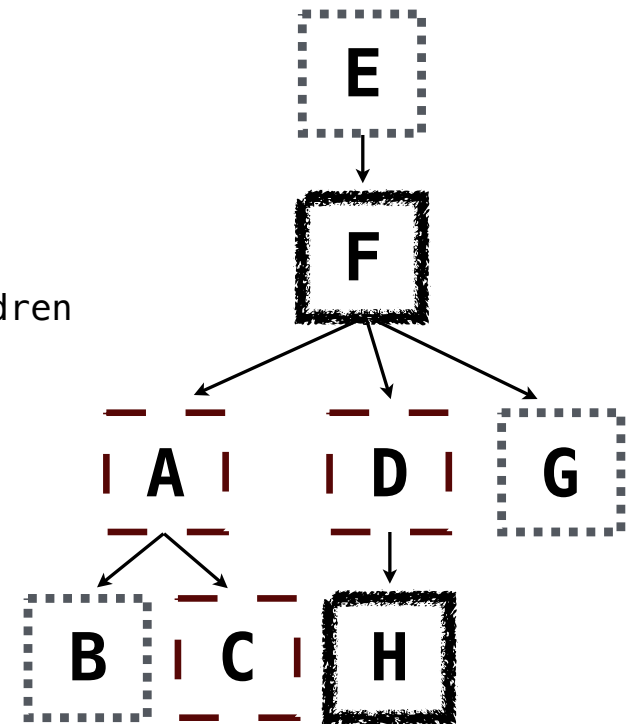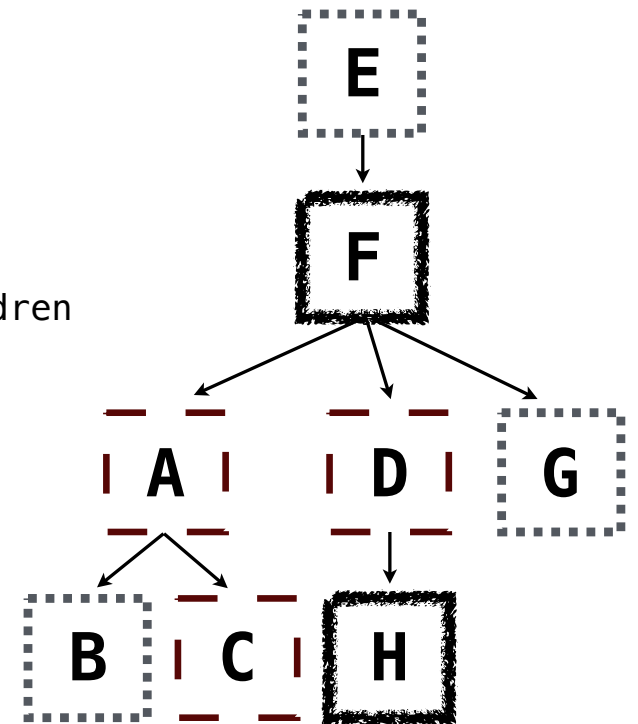Which tables need to be joined together?

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Which tables need to be joined together?

```
SELECT grandog FROM grandparents, dogs AS c, dogs AS d
            WHERE grandog = c.name AND
                  granpup = d.name AND
                  c.fur = d.fur;
```
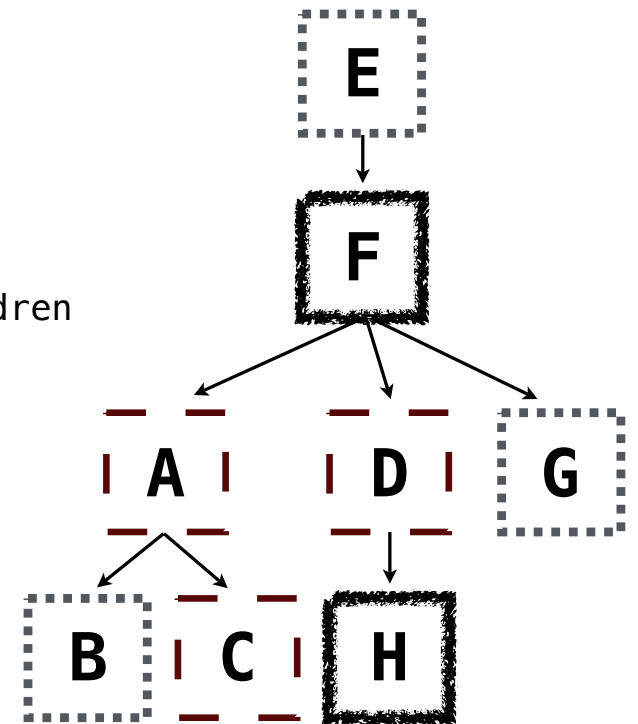
Example: Dog Triples

Fall 2014 Quiz Question (Slightly Modified)

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Write a SQL query that selects all possible combinations of three different dogs with the same fur and lists each triple in *inverse* alphabetical order

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```sql
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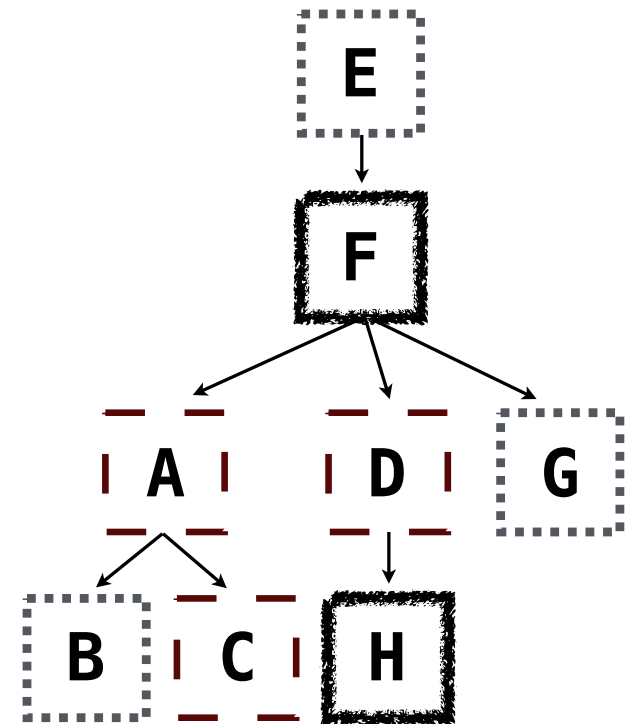
Expected output:

```
delano|clinton|abraham
grover|eisenhower|barack
```
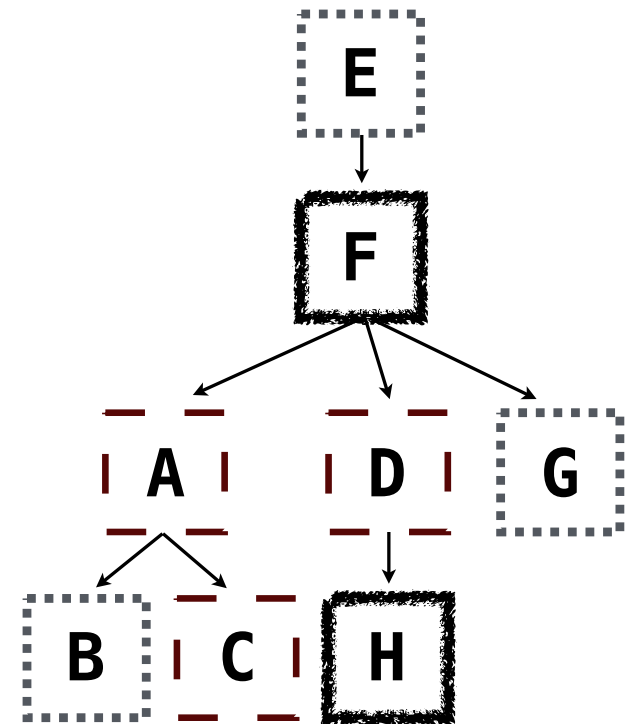
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(Demo)
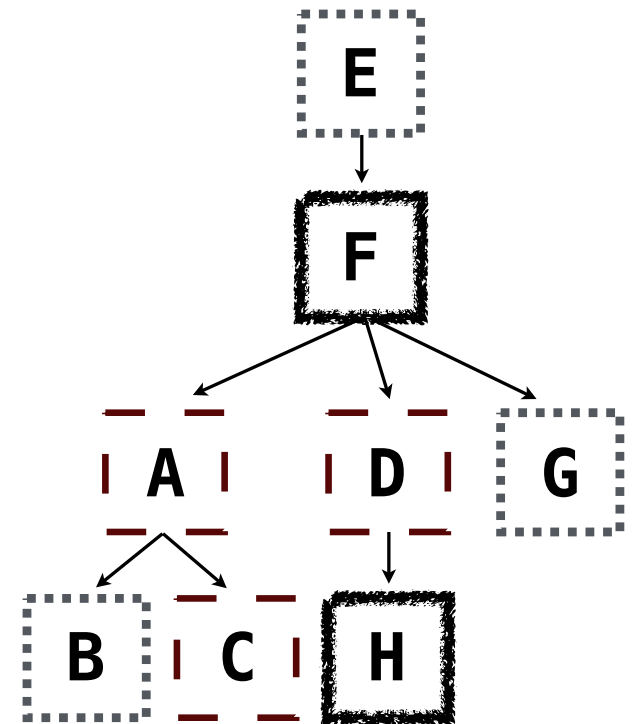
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(Demo)

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```
sqlite> CREATE TABLE phrase AS SELECT "hello, world" AS s;
sqlite> SELECT substr(s, 4, 2) || substr(s, instr(s, " ")+1, 1) FROM phrase;
```

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Basic string manipulation is built into SQL, but differs from Python

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sqlite> CREATE TABLE phrase AS SELECT "hello, world" AS s;
sqlite> SELECT substr(s, 4, 2) || substr(s, instr(s, " ")+1, 1) FROM phrase;
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String Expressions

String values can be combined to form longer strings

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(Demo)